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SPECIAL REPORT

OUTDOOR RECREATION

TEXAS COASTAL BASINS



TYPE IV COOPERATIVE RIVER BASIN SURVEY

BY

THE UNITED STATES DEPARTMENT OF AGRICULTURE
IN COOPERATION WITH
THE TEXAS WATER DEVELOPMENT BOARD
THE TEXAS STATE SOIL AND WATER CONSERVATION BOARD
INTERAGENCY COUNCIL ON NATURAL RESOURCES AND THE ENVIRONMENT
THE TEXAS WATER RIGHTS COMMISSION

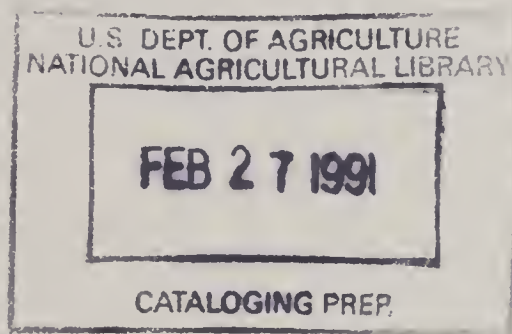
AUGUST 1975

SPECIAL REPORT

OUTDOOR RECREATION

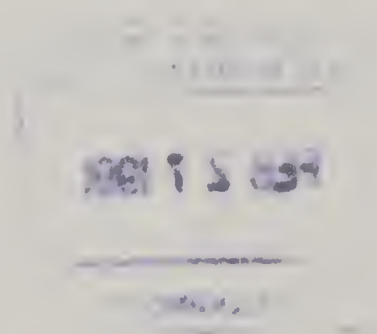
of the

TEXAS COASTAL BASINS



Prepared by:
United States Department of Agriculture
Soil Conservation Service

August 1975



SPECIAL REPORT
OUTDOOR RECREATION
of the
TEXAS COASTAL BASINS

951092

TABLE OF CONTENTS

<u>Title</u>	<u>Page Number</u>
INTRODUCTION	
Purpose and Scope	1
Description of the Area	1
Relationship to Rest of the Report	2
METHODOLOGY	2
Source of Information	2
Facilities Inventoried	5
Supply, Demand, and Needs	6
Definitions	6
INVENTORY OF RESOURCES	9
EVALUATION OF RESOURCES	13
Upper Coastal Geographic Region	13
Middle Coastal Geographic Region	17
Lower Coastal Geographic Region	20
Summary	22
OPPORTUNITIES FOR DEVELOPMENT	25
PROBLEMS	26
CONCLUSIONS	27
REFERENCES	29

PLATES

<u>Plate Number</u>	<u>Title</u>	<u>Page Number</u>
1	Study Area	3
2	Significant Recreational and Tourist Attractions	11
3	Geographic Regions	15

TABLES

<u>Table Number</u>	<u>Title</u>	<u>Page Number</u>
1	Park Inventory of Upper Coastal Geographic Region	13
2	Supply and Needs for Upper Coastal Geographic Region	14
3	Park Inventory of Middle Coastal Geographic Region	18
4	Supply and Needs for Middle Coastal Geographic Region	19
5	Park Inventory of Lower Coastal Geographic Region	20
6	Supply and Needs for Lower Coastal Geographic Region	21
7	Park Inventory of Texas Coastal Basins	22
8	Supply and Needs for Texas Coastal Basins	23
9	Demand, Texas Coastal Basins	24
10	Developed Land, Existing and Needed	25

INTRODUCTION

Purpose and Scope

This report on outdoor recreation, which was prepared in consonance with the overall objectives of the Texas Coastal Basins study, presents data which will enable decision makers to assess the effects of land and water resource projects on recreational resources. Recreational resources needs, supply, demand, and potentials are explored with suggestions for development of recreational resources.

This recreational report was developed from data provided by the Comprehensive Planning Branch of the Texas Parks and Wildlife Department in their preliminary draft volumes of the Texas Outdoor Recreation Plan (TORP).

Description of the Area

The Texas Coastal Basins (Plate 1) are located entirely within the State of Texas and include all of 24 counties and portions of 22 counties. The area borders the Gulf of Mexico and includes all of the coastal basins and intervening areas between the Lower Rio Grande Valley and the Sabine River Basin. It lies at the lower end of the Texas Gulf Region as used in the framework planning program of the Water Resources Council.

The study area is about 380 miles long and averages about 70 miles wide. It includes approximately 20,733,400 acres of land and 1,577,000 acres of water bodies over 40 acres in size. Barrier islands stretch along the coastline separating the Gulf of Mexico from numerous bays and estuaries. The area is characterized by the low topographic relief which is typical of the entire Gulf Coastal Plain. Elevations range from sea level to about 900 feet.

The climate is humid to sub-humid. Average annual rainfall ranges from 55 inches at Beaumont to 26 inches at Kingsville. The average length of the growing season varies from 319 days in Kenedy County to 241 days in Tyler County. The average annual temperature ranges from about 70 degrees at Beaumont to 74 degrees at Corpus Christi. Except on rare occasions sea breezes prevent extremely high summer temperatures over most of the study area.

The geologic formations which crop out in the study area range in age from Recent on the coast to Eocene (about 46 million years old) in the most inland areas. They consist of relatively unconsolidated clay, sand, and gravel and dip gently toward the coast. The most significant geologic structural features are salt domes which are important sources of mineral wealth.

The Texas Coastal Basins have a wide variety of vegetation due to diverse topography, climate, and soils. Plant communities vary from forests of

pine, oak, sumac, and magnolia in the humid subtropical upper geographic region to prickly pear and mesquite in the lower geographic region. The area in between is generally prairies covered by bluestem grasses, rice, cotton, and grain sorghum. These prairies are generally dissected by water-courses lined with hackberry, elm, live oak, cottonwood, and willow trees. The Coastal Prairie is flanked on the north by post oak and blackjack oak, and on the south by marsh which contains maidencane, jamaica sawgrass, bulrush, and cattails.

Twenty-nine percent of the total population of Texas lives within the Texas Coastal Basins. This amounts to 3,197,785 people by 1970 census. Of this amount 504,808 people are living in rural areas or 22 percent of the rural population of Texas. Within the study area 2,692,777 people live in towns, cities, and metro areas. This represents 30 percent of the urban population of Texas. Thirteen percent of the total land area in Texas lies within the confines of the study area. The population is expected to increase greatly by the year 2000. Corresponding to this expected increase in population is an increased demand for leisure time recreational activities. However, the resident population only represents 25 percent of the total recreational participation in the study area.

Relationship to Rest of the Report

The plan for the development of the resources of the Texas Coastal Basins to meet existing and projected human needs requires the blending of information related to all the natural resources of the basin. The data and recommendations presented in this report were developed as a guide for the preservation and development of recreational resources in consonance with the stated study objectives. In this regard, the data and recommendations are related to the factors and influences which are presented in detail in the other special reports. Recreational resources are an integral part of resource planning and this report should complement other reports when selecting alternatives for development and use of all resources.

METHODOLOGY

Source of Information

In order to accurately make projections of future recreational needs, the first step is to inventory present facilities and their usage. Various inventory methods and analytical techniques can be used. Inventories of recreational resources were conducted by the Comprehensive Planning Branch of the Texas Parks and Wildlife Department in 1969 and updated in 1971 and 1973. This inventory was conducted by mail-out questionnaires and on-site inspections of recreational facilities both publicly and privately administered. All types and sizes of enterprises were inventoried, providing they supplied some form of outdoor recreation and were open to the general public as social change occurs and as new activities develop, participation in classical activities will probably decline.

Along with these inventories several recreational demand surveys were also conducted. These surveys were for the purpose of determining recreational

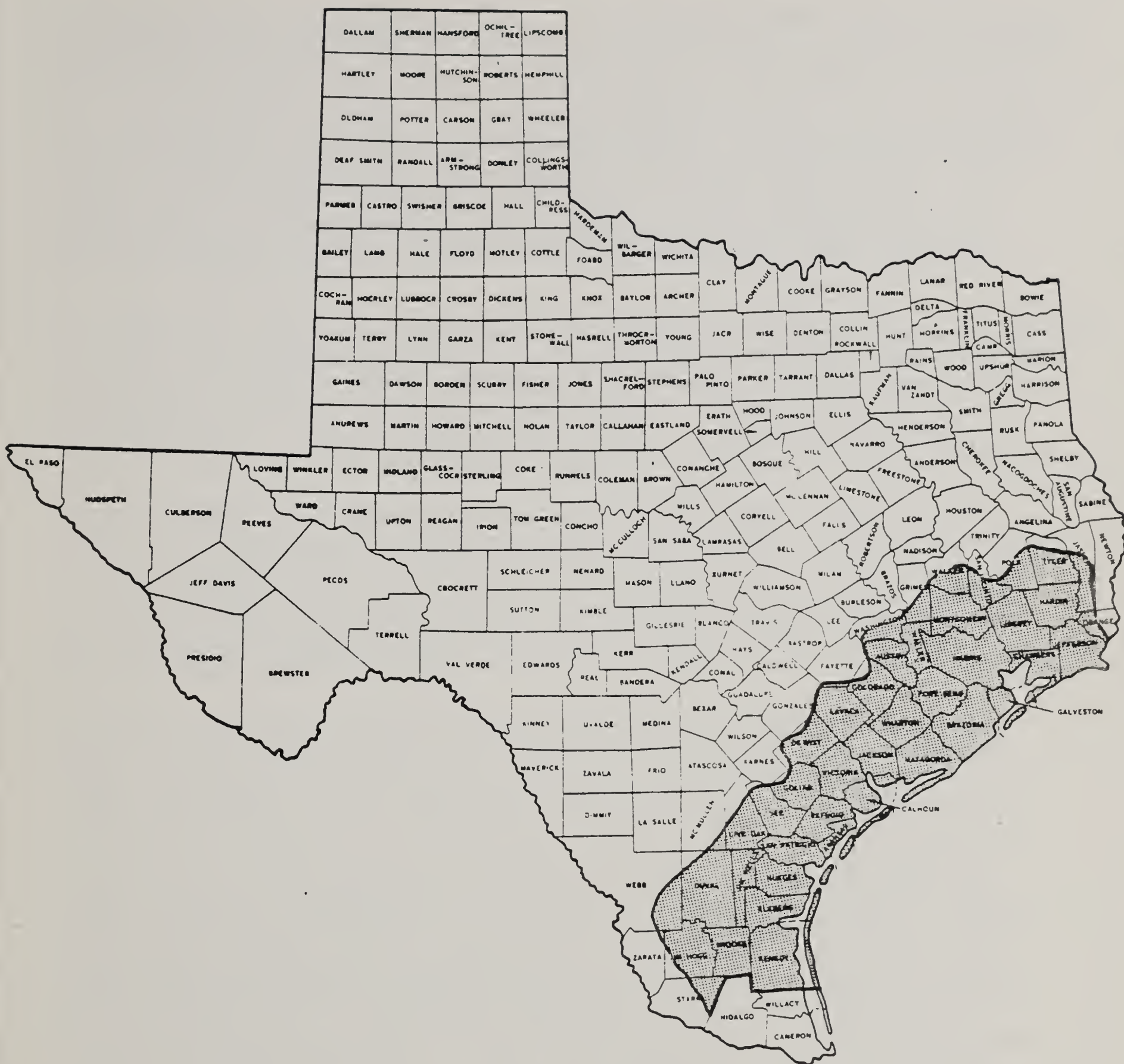


PLATE I

STUDY AREA TEXAS COASTAL BASINS U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

TEMPLE, TEXAS

participation by the general public. The household demand survey was designed to determine the magnitude and nature of participation in outdoor recreation. Over 15,000 households, selected at random, were interviewed to collect detailed information. The 1971 on-site recreational demand survey was conducted to provide detailed information on participant households and supplement the information from the household demand survey. Seven thousand and eight hundred recreationists were interviewed at 161 parks across Texas. This survey helped provide information on the mix of activities pursued, expenditures, distances traveled, facility and activity preferences, daily peak use periods, weekday use as related to weekend use, and suggestions for site improvement.

An additional survey was conducted in 1971 which involved city park departments or other city entities responsible for providing recreational opportunities. Additional surveys are being carried out continuously by the Travel and Information Division of the State Department of Highways and Public Transportation. These surveys provide current information about out-of-state visitors to Texas and help in planning recreational and tourism facilities.

The next step in the formulation was to forecast demand for specific recreational activities for the period from 1970 to 2000. The approach used by the Comprehensive Planning Branch was to relate household participation in specific activities to socio-economic characteristics of the household and the availability of facilities. All of this information was utilized by the Texas Parks and Wildlife Department in formulating the Texas Outdoor Recreation Plan (TORP).

In order to compare estimated demand with available supply to determine needs, it was necessary to convert facilities inventory data to days of annual opportunity available for each of several outdoor recreation activities facilities. This conversion allows estimates of the capacity of existing facilities for participation to be developed. First, estimates of the days of annual opportunity provided by one unit of a recreational facility of a given type were developed and were adjusted for both seasonal and weekly fluctuations in participation patterns. These estimates, different for each facility unit and type, were entitled "facility standards", and allowed existing inventories of recreational facilities to be converted to estimates of annual days of recreation opportunity available in the study area. An iterative estimation technique was employed to determine the level of facilities that would be utilized by recreationists if they were made available. Then, the difference between that level and existing levels of facilities was determined to estimate facility needs. To meet these needs, development priorities were set according to the greatest deficit.

Facilities Inventoried

Of the many outdoor recreational facilities inventoried and analyzed by the Comprehensive Planning Branch of Texas Parks and Wildlife Department, only 11 will be used extensively throughout this report. Hunting and fishing are dealt with at great length in the Special Report on Fish and Wildlife Resources in the Texas Coastal Basins (March 1975).

The 11 facilities inventoried for this report and the related outdoor recreational activity for these facilities are as follows:

Camping is inventoried by campsite. A campsite is the location of an individual camping unit.

Child's play is inventoried by acres of playground.

Golf is an activity that was inventoried by number of golf holes on a golf course. Therefore, a nine-hole golf course would count as nine holes.

Baseball was inventoried by number of "ball fields". Softball and other "ball" games are included in this category.

Picnicking was inventoried by a count of the number of picnic tables.

Water sports were inventoried by the acres of water available for boating, boat fishing, and skiing.

The three types of trail activities inventoried in this report are bicycling, horseback riding, and combined trails for walking, hiking, and nature study. All trails are inventoried by length of trail in miles.

The two types of swimming inventoried are swimming pools and designated swimming areas. Swimming areas are inventoried by area of swimming water in square yards.

Supply, Demand, and Needs

Supply of recreational facilities is usually expressed in a number of a certain type of facility (Example: number of picnic tables). Demand for recreational facilities is expressed in terms of annual activity days. In order to determine needs for recreational facilities, a conversion factor is used to convert facilities to annual activity days of capacity. Where the current day supply is not sufficient to meet the current day and projected demand, facilities needed are shown. Since no direct comparison can be made between demand in activity days and supply or needs in number of facilities without a conversion factor, demand is summarized and shown in Table 10.

Tables 2, 4, 6, and 8 show 1970 supply and projected needs through the year 2000 for the 11 recreational activities.

Definitions

Activity Day - Participation by an individual in a specific outdoor recreational activity during any part of a day.

Bicycle Trail - A trail designed for and limited to the use of bicycles.

Boating - The use of boats (including canoes, sailboats, rowboats, rafts, floats, and outboard and inboard motor boats) for recreational purposes.

Camping - Living outdoors using a bedroll, sleeping bag, tent, trailer, or similar shelter. It does not include formal group camping by organizations such as the Boy Scouts and 4-H groups unless public facilities are used.

Child's Play - A recreational activity that takes place by children at a playground area.

Demand - A measure of outdoor recreational participation in activity days, given a certain set of socio-economic and opportunity conditions.

Designated Swimming Area - An area of freshwater or saltwater where swimming is allowed. Usually includes support facilities such as a bath-house.

Developed Acres - Acres of facilities developed such as acres of picnic facilities. Synonymous with developed recreational land.

Golf - A recreational activity which takes place at golf courses and involves playing at least a part of a round of golf.

Hiking - Destination-oriented walking for recreational purposes, normally involving the carrying of a pack, provisions, and/or some kind of shelter.

Horseback Riding Trail - A trail designed for and restricted to the use of horseback riding.

Land-Oriented Recreation Activity - A recreational activity that is essentially dependent upon only a land area for fulfillment.

Nature Walks - A recreational activity that consists of walking for the specific purpose of observing, collecting, photographing, or studying flora, fauna, geological formations, and other natural phenomena.

Needs - Facilities required to satisfy unmet recreational demand.

Outdoor Recreation - A leisure-time activity which uses an outdoor setting.

Outdoor Recreation Area - An area of natural resources suitable for recreational use or used for that purpose, either developed or undeveloped.

Outdoor Recreation Facility - Recreational structures or conveniences for outdoor recreational activities in a designated area. Some activities can take place without facilities, but not without resources.

Outdoor Recreation Resource - Any land and/or water area which can be used for outdoor recreation.

Outdoor Recreation Site - A small and continuous tract of land developed for a specific recreational activity or closely related combination of activities such as swimming site, campsite, or picnic site.

Outdoor Recreation Unit - A facility or group of complementary facilities normally in a camp, picnic site, or park, designed to accommodate a family. Examples would include: a table, fireplace, and tent site recreation unit.

Participation Rate - The number of occasions of participation in various outdoor recreational activities by an individual during a measured time period is expressed as an average in a sample.

Picnicking - Eating a meal out-of-doors and away from home as a primary or sought-after activity. It does not include eating out-of-doors during hunting, camping, and other similar occasions.

Playground - An area for children to play equipped with such facilities as swings, climbing apparatus, and other traditional facilities.

Potential Supply - That part of the basins' resource base that has recreational development potential.

Recreation Day - A visit by an individual to a recreational area for recreational purposes during a significant portion or all of a 24-hour day.

Recreation Resource Areas - Those geographic areas having physical features and land use patterns favorable to extensive recreational development and use.

Sightseeing - Intentionally observing some interesting outdoor resource, but not including casual viewing from a car window while engaged in, for example, business travel.

Supply - Resources and facilities capable of providing outdoor recreation.

Swimming - A recreational activity that includes bathing, scuba diving, and playing water games.

Tourist - A recreationist or vacation traveler who has traveled more than 150 miles to reach a recreational area. A tourist may be driving through the study area or may have a destination point within the study area.

Walking for Pleasure - Any type of walking or strolling without pack for recreational or health purposes, excluding activity considered to be "hiking". Includes the traditional "walk around the block".

Water-Oriented Recreation Activity - A recreational activity that is dependent on or enhanced by the presence of a water area.

Water Skiing - An activity that includes all of the water surface sports which involve a person being towed behind a boat using such equipment as water skis or aquaplanes.

Water Sports - Activities which take place in contact with the water such as boating, boat fishing, and water skiing.

INVENTORY OF RESOURCES

The Texas Coastal Basins offer a wide variety and an abundant quantity of natural resources. An inventory of the parks within the basin boundaries discloses 798 city parks, 76 county parks, 19 state parks, eight federal parks, and 182 private parks providing a variety of recreational facilities. These parks represent varying degrees of development and quality, encompassing a combined total of 189,654 acres, which is about one acre for each 16 inhabitants, or one percent of the total land in the study area. However, this total does not include the Big Thicket Biological Preserve, wildlife refuges, and hunting on private lands. Also only a small portion of the Sam Houston National Forest was included since that is all that is developed.

Wildlife refuges are included in the special report on fish and wildlife in the Texas Coastal Basins. Historical sites are included in the special report on historical and archeological resources in the Texas Coastal Basins.

In Harris County, the most populous county in the study area, there are 22 county parks covering 870 acres or one-half acre of county park land per 1,000 population. A standard for county parks is 15 acres per 1,000 population. The City of Houston has 2,434 acres of city park land which is almost two acres per 1,000 population. Corpus Christi has 579 acres of city park land which is slightly over two acres per 1,000 residents. Standards for city parks vary from 10 to 20 acres per 1,000 people.

According to a survey by the Comprehensive Planning Branch of the Texas Parks and Wildlife Department, there are 403 recreation areas in the study area which have playground facilities. Games and sports facilities are found in 340 enterprises, while 304 areas have picnic facilities. There are 34 regulation golf courses within the study area. Sport shooting facilities and camping accommodations are relatively few in number.

Water-based recreation facilities on fresh-water bodies within the study area are generally confined to Lake Corpus Christi and Lake Houston. Much of the water-based recreation need is being satisfied by several large reservoirs just outside the study area boundary. Numerous farm ponds and small lakes have a high potential for providing recreation, if they could be made available to recreationists.

Some of the significant recreational and tourist attractions in the Texas Coastal Basins are listed here and are shown on the map, Plate 2, by the corresponding number.

1. Big Thicket Biological Preserve - Composed of 84,550 acres of land, this preserve is dispersed in seven counties: Jefferson, Hardin, Tyler, Jasper, Orange, Polk, and Liberty. Although land acquisition is in process to attain these acreages, it presently offers a natural area for nature study and hiking.
2. Alabama-Coushatta Indian Reservation - Located in Polk County adjacent to the Big Thicket, this 1,280-acre reservation is the only Indian reservation in Texas.

3. Sam Houston National Forest - This 158,232-acre forest is situated in Montgomery, San Jacinto, and Walker counties. It presents a high potential for development; however, at present recreation development is limited to Double Lake and Lake Stubblefield. These are small areas with primary use being camping, picnicking, swimming, and hiking.
4. Lake Conroe - This 20,985-acre lake located in Montgomery County provides numerous opportunity days for water-based recreation.
5. Lake Houston - The City of Houston constructed this 12,240-acre lake in Harris County. It supplies a multitude of opportunity days for water-based recreation to Houston.
6. Astrodome - Correctly called Harris County Domed Stadium this dome was erected by Harris County in Houston as the world's first air conditioned stadium for football and baseball.
7. Lyndon B. Johnson Space Center - This center was previously referred to as NASA--Manned Spacecraft Center--and is also located in Harris County. It is the headquarters for the man-in-space effort of the National Aeronautics and Space Administration.
8. Galveston Island - This popular recreational area offers a variety of salt-water-related activities along its 32 miles of coastline, including Galveston Island State Park.
9. Gulf Coast - The darker triangles only indicate some of the major beaches along the Coast. With over 300 miles of coastline in the study area numerous beaches exist, but most of them are undeveloped for recreation; however, they still receive a high degree of use for such activities as swimming, fishing, surfing, and sunbathing.
10. Stephen F. Austin State Park - This 664-acre park located in Austin County offers many forms of outdoor recreation such as picnicking, camping, swimming, and golf.
11. Goliad State Park - This 208-acre park located in Goliad County offers camping and picnicking.
12. Goose Island State Park - This 307-acre park in Aransas County supplies a variety of recreational facilities including children's playgrounds, fishing piers, and boat ramps.
13. Lake Corpus Christi - Located in San Patricio and Live Oak counties, this 14,187-acre lake supports both land and water recreational activities.

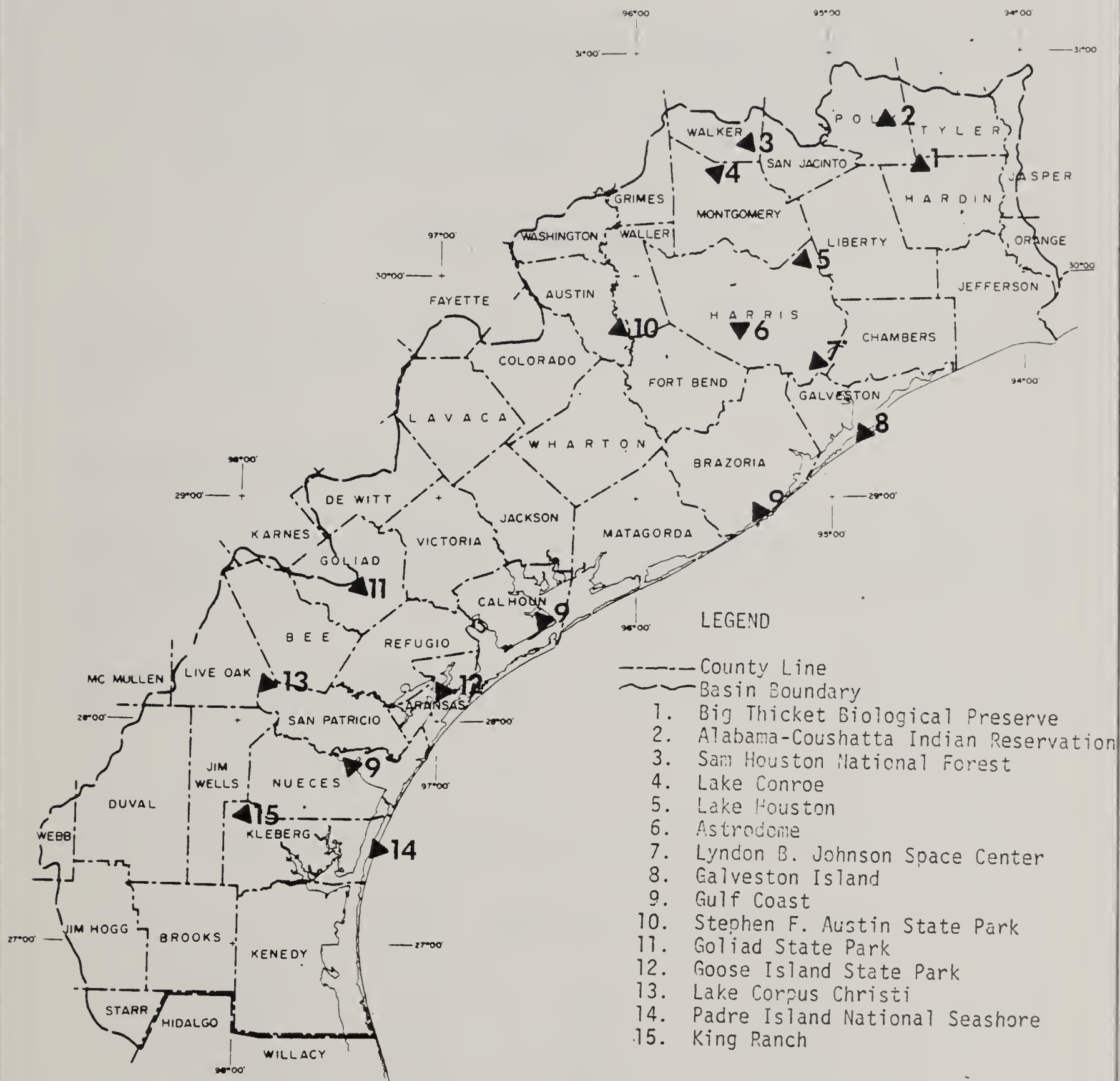


PLATE 2

SIGNIFICANT RECREATIONAL AREAS AND TOURIST ATTRACTIONS

TEXAS COASTAL BASINS
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TEMPLE, TEXAS

0 10 20 30 40 MILES
APPROXIMATE SCALE
1:250,000

Compiled from USGS basin map of Texas
and other Coastal Basin Projection

14. Padre Island National Seashore - This park is 110 miles long--longest in the United States--and is located on one of the barrier islands near Corpus Christi. It contains 133,918 acres of beaches and sand dunes. Only 1.4 percent of the land has been developed for recreation.
15. King Ranch - This privately-owned ranch is the largest in the continental United States with its 823,000 acres. It is located in four counties; Kenedy, Kleberg, Nueces, and Willacy. Due to its complexity casual visitors are not accepted; however, a 12-mile loop has been developed to show the major points of interest.

EVALUATION OF RESOURCES

To evaluate the problems and needs, the Texas Coastal Basins were divided into three geographic regions which are Upper Coastal, Middle Coastal, and Lower Coastal - Plate 3.

Upper Coastal Geographic Region

The counties in this region are Montgomery, Liberty, Hardin, Jefferson, Chambers, Galveston, and Harris with portions of Walker, San Jacinto, Polk, Tyler, Jasper, and Orange counties. This region is typified by mixed pine and hardwood forests in the northern half to a coastal prairie along the coast.

There are 627 parks located within this region, which are provided by all levels of government and the private sector - Table 1.

TABLE 1

Park Inventory of Upper Coastal Geographic Region Texas Coastal Basins

	<u>Parks</u>	<u>Developed Acres</u>	<u>Total Acres</u>
Federal	7	974	1,124
State	6	3,738	22,718
County	52	2,780	5,694
Municipal	480	10,224	11,356
Private	<u>82</u>	<u>1,891</u>	<u>7,378</u>
TOTAL	627	19,607	48,270

Of the 48,270 acres of land set aside for recreation in this region, only 40 percent or 19,607 acres of land have been developed for some form of recreation.

TABLE 2

SUPPLY AND NEEDS FOR
UPPER COASTAL GEOGRAPHIC REGION
TEXAS COASTAL BASINS

<u>Facilities</u>	<u>Units</u>	<u>1970 Supply</u>	<u>1970 Needs</u>	<u>1980 Needs</u>	<u>2000 Needs</u>
Camping	Sites	1,500	3,046.0	7,766.0	16,796.0
Playground	Acres	600	33.0	295.0	1,523.0
Golf	Holes	226	447.0	970.0	2,788.0
Baseball	Fields	340	4.0	10.0	106.0
Picnic	Tables	3,600	1,463.0	10,434.0	27,719.0
Trails - Horse Walk Bicycle Total	Miles	15	79.4	253.2	950.8
	Miles	130	157.6	517.5	1,836.7
	Miles	25	129.4	468.6	1,546.1
	Miles	170	366.4	1,239.3	4,333.6
Swim - Pool Designated	1000 sq.yd.	39	142.0	340.0	969.0
Fresh water Total	1000 sq.yd.	18	887.0	1,419.0	2,907.0
	1000 sq.yd.	57	1,029.0	1,759.0	3,876.0
Water Sports	Surface Acres	70,000	114.0	294.0	6,617.0



PLATE 3 GEOGRAPHIC REGIONS TEXAS COASTAL BASINS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TEMPLE, TEXAS

0 20 40 60 80 MILES
APPROXIMATE SCALE
1:250,000

Compiled from USGS base map of Texas
Lambert Conformal Conic Projection

The supply and needs for selected recreational facilities projected through year 2000 for this region are shown in Table 2.

Table 2 shows that a present day need exists for recreational facilities. This need for facilities will more than double by 1980. Greater increases of need for facilities will occur by 2000.

In order to determine the amount of land required to fulfill these needs facility units were converted to acres. In 1970, 9,353 acres of land were needed to meet the demand for land-based recreation (camping, child's play, golf, baseball, picnicking, trails, and swimming); by 1980, 20,915 acres will be needed; and 57,729 acres will be needed by the year 2000.

Approximately 6,617 surface acres of recreational water will be needed by the year 2000 to meet the demand.

Within the Upper Coastal Geographic Region additional recreational facilities should be developed according to the priorities shown below:

1. Boat Ramps
2. Picnic Tables
3. Swimming Pools
4. Bicycle Trails
5. Horseback Riding Trails
6. Campsites
7. Playgrounds
8. Walking, Hiking, Nature Study Trails
9. Designated Swimming Waters

Appraisals of potential for recreational development have been conducted in counties of the Upper Coastal Geographic Region of the Texas Coastal Basins. Some recreational developments were appraised as having a high potential in each county. When a composite was made of the potentials, the following received a high rating for the Region: play areas, bicycling, fishing waters, golf courses, and natural areas. Other developments with a composite rating of medium-high are: camping, picnicking, riding stables, and water sports areas.

Middle Coastal Geographic Region

The middle portion of the study area includes the following counties: Brazoria, Calhoun, Victoria, Jackson, Wharton, Fort Bend, Waller, Austin, and Lavaca; and portions of Grimes, Washington, and Fayette counties (see Plate 3). The vegetation in this region ranges from oak-yaupon complex in the northern part to a coast prairie being dissected by wooded streams.

There are 177 recreation parks in this region of which 63 are provided by the private sector and the remaining 114 are provided by the state, county, and municipal governing agencies.

TABLE 3

Park Inventory of Middle Coastal Geographic Region
Texas Coastal Basins

	<u>Parks</u>	<u>Developed Acres</u>	<u>Total Acres</u>
State	7	428	2,272
County	12	45	314
Municipal	95	1,282	1,641
Private	<u>63</u>	<u>2,074</u>	<u>2,162</u>
TOTAL	177	3,829	6,389

According to Table 3, 3,829 acres or 60 percent of the total recreational land in this region is developed for some form of recreation.

The supply and needs occurring in this region are displayed in Table 4, which indicates a need for all recreational facilities inventoried in each time frame.

Facility units of measure for land-based recreation needed to offset this ever-increasing demand were converted to acres in order to show the additional land that will be required. In 1970, 1,894 acres of land were required; by 1980, 5,163 acres will be needed; and by the year 2000, 12,014 acres will be needed.

To meet the demand for water-based recreation in the year 2000, approximately 5,000 surface acres of water will be needed.

Additional recreational facilities should be developed in the Middle Coastal Geographic Region according to these priorities:

1. Bicycle Trails
2. Combined Walking Trails
3. Horseback Trails
4. Campsites
5. Picnic Tables
6. Swimming Pools
7. Boat Ramps
8. Designated Swimming Waters
9. Playgrounds
10. Boat Stalls

Only slight differences exist between the first seven facilities on the priority list. The last three facilities rank considerably lower than the first seven.

Appraisals of potential for development of recreational facilities indicate many with a high potential. Each county has been appraised individually and these appraisals put together form a composite appraisal of the Middle Coastal Geographic Region. This composite appraisal indicates several recreational facilities with a high developmental potential.

TABLE 4

SUPPLY AND NEEDS FOR
MIDDLE COASTAL GEOGRAPHIC REGION
TEXAS COASTAL BASINS

<u>Facilities</u>	<u>Units</u>	<u>1970 Supply</u>	<u>1970 Needs</u>	<u>1980 Needs</u>	<u>2000 Needs</u>
Camping	Sites	470	1,317.0	4,724.0	9,859.0
Playground	Acres	100	32.0	93.0	233.0
Golf	Holes	207	25.0	62.0	152.0
Baseball	Fields	80	6.0	13.0	47.0
Picnic	Tables	1,000	1,056.0	5,067.0	12,480.0
Trails - Horse Walk Bicycle Total	Miles	2	112.9	294.5	693.6
	Miles	6	64.8	127.2	266.0
	Miles	1	89.4	211.3	480.8
	Miles	9	267.1	633.0	1,440.4
Swim - Pool	1000 sq.yd.	12	12.0	26.0	74.0
Designated					
Fresh water	1000 sq.yd.	56	129.0	317.0	745.0
Total	1000 sq.yd.	68	141.0	343.0	819.0
Water Sports	Surface Acres	34,000	140.0	799.0	4,697.0

Lower Coastal Geographic Region

The lower portion of the Texas Coastal Basins includes Refugio, Aransas, Bee, San Patricio, Jim Wells, Brooks, Kenedy, Kleberg, and Nueces counties as well as portions of Starr, Jim Hogg, Webb, Duval, McMullen, Live Oak, Karnes, Goliad, and DeWitt counties. The terrain ranges from coastal plains to the brushy plains further inland. The coastal areas are vegetated with mesquite and live oak with saltgrasses in the lowlands.

There are 279 recreational parks in this region of which 37 are privately operated.

TABLE 5

Park Inventory of Lower Coastal Geographic Region
Texas Coastal Basins

	<u>Parks</u>	<u>Developed Acres</u>	<u>Total Acres</u>
Federal	1	1,800	125,883
State	6	548	4,600
County	12	357	977
Municipal	223	1,588	2,459
Private	<u>37</u>	<u>205</u>	<u>1,076</u>
TOTAL	279	4,498	134,995

Of the 134,995 acres of recreational land in this region, only three percent or 4,498 acres have been developed for recreation. The majority of undeveloped land is Padre Island National Seashore which is Federally administrated.

The supply and needs for selected recreation facilities in this Region are exhibited in Table 6. A need is indicated for each facility in each time frame to satisfy the demand.

To determine the additional amount of land required to satisfy the needs in Table 6, facility units for land-based recreation were converted to acres. In 1970, 3,170 acres of land were needed; by 1980, 8,039 acres of land will be needed; and by the year 2000, 16,029 acres of land will be needed to accommodate the demand requirement.

For water-based recreation, 3,456 surface acres of recreational water will be needed by the year 2000. If the supply of recreational water was distributed uniformly in this region it would be adequate for the year 2000.

Priorities for development of recreational facilities within the Lower Coastal Geographic Region are shown in the following chart:

TABLE 6

SUPPLY AND NEEDS FOR
LOWER COASTAL GEOGRAPHIC REGION
TEXAS COASTAL BASINS

<u>Facilities</u>	<u>Units</u>	<u>1970 Supply</u>	<u>1970 Needs</u>	<u>1980 Needs</u>	<u>2000 Needs</u>
Camping	Sites	1,100	4,157.0	10,050.0	15,843.0
Playground	Acres	200	5.8	30.1	302.1
Golf	Holes	126	41.0	83.0	207.0
Baseball	Fields	40	40.0	72.0	168.0
Picnic	Tables	1,200	2,266.0	12,973.0	28,593.0
Trails - Horse Walk Bicycle Total	Miles	5	35.0	92.0	205.0
	Miles	13	144.2	262.8	569.7
	Miles	18	12.5	35.5	102.4
	Miles	36	191.7	390.3	877.1
Swim - Pool	1000 sq.yd.	15	26.0	93.0	211.0
Designated Fresh water	1000 sq.yd.	1	247.0	907.0	966.0
Total	1000 sq.yd.	16	273.0	1,000.0	1,177.0
Water Sports	Surface Acres	16,500	91.0	200.0	3,456.0

1. Picnic Tables
2. Boat Ramps
3. Campsites
4. Designated Swimming Waters
5. Combined Trails
6. Swimming Pools
7. Fishing Piers
8. Boat Stalls
9. Horseback Trails
10. Playground Areas
11. Bicycle Trails
12. Golf

Development of recreational facilities should be based on priorities (according to need) and potential of the resources. Appraisals of potential for recreational developments have been completed for nearly all counties in Texas. A composite appraisal for the Lower Coastal Geographic Region can be made by putting together the appraisals of the counties in the area. This composite indicates several recreational developments with high developmental potential.

Summary

A total of 1,083 recreational parks are located in the Texas Coastal Basins. These are provided by different levels of governing agencies and the private sector, as shown in Table 7.

TABLE 7

Park Inventory of Texas Coastal Basins

	<u>Parks</u>	<u>Developed Acres</u>	<u>Total Acres</u>
Federal	8	2,774	127,007
State	19	4,714	29,590
County	76	3,182	6,985
Municipal	798	13,094	15,456
Private	<u>182</u>	<u>4,170</u>	<u>10,616</u>
TOTAL	1,083	27,934	189,654

These parks are comprised of 189,654 acres of land that have been set aside for recreation. However, only 14 percent or 27,934 acres of this land are actually developed for some form of recreation.

Table 8 gives a summary of the supply and needs data shown in Tables 2, 4, and 6. This data was based on inventories and surveys made in 1968-1970 and the supply amounts are supplies available at that time. This need column indicates the amount of a facility needed in order to fill the supply deficiency. Projected needs are shown for 1980 and 2000.

TABLE 8

SUPPLY AND NEEDS FOR
TEXAS COASTAL BASINS

<u>Facilities</u>	<u>Units</u>	<u>1970 Supply</u>	<u>1970 Needs</u>	<u>1980 Needs</u>	<u>2000 Needs</u>
Camping	Sites	3,070	8,520.0	22,540.0	42,498.0
Playground	Acres	900	70.8	318.1	2,058.1
Golf	Holes	559	513.0	1,115.0	3,147.0
Baseball	Fields	460	50.0	95.0	321.0
Picnic	Tables	5,800	4,785.0	28,474.0	68,729.0
Trails - Horse Walk Bicycle Total	Miles	22	227.3	639.7	1,849.4
	Miles	149	366.6	907.5	26,724.0
	Miles	44	231.3	715.4	2,129.3
	Miles	215	825.2	2,262.6	30,702.7
Swim - Pool	1000 sq.yd.	66	180.0	459.0	1,254.0
Designated					
Fresh water	1000 sq.yd.	75	1,263.0	2,643.0	4,618.0
Total	1000 sq.yd.	141	1,443.0	3,102.0	5,872.0
Water Sports	Surface Acres	120,5000	345.0	1,293.0	14,770.0

A need exists for each recreational facility in each time frame. Demand for recreational activities is shown in Table 9 in activity days. Increases of demand are as great as 14 times from 1970 to 2000. Demand for all recreational activities shown in this report is expected to increase in this 30-year period.

TABLE 9
DEMAND
TEXAS COASTAL BASINS

(Shown in 1000 Activity Days)

<u>Activity</u>	<u>1970</u>	<u>2000</u>
Camping	5,434	21,693
Playground	10,316	50,140
Golf	2,934	13,141
Baseball	2,306	8,888
Picnic	9,437	55,862
Horse Trails	2,316	13,856
Walk Trails <u>1/</u>	15,604	132,902
Bicycle Trails	18,213	206,841
Swimming <u>2/</u>	15,808	61,106
Water Sports	1,682	24,602

1/ Includes hiking, nature trails, and walking for pleasure.

2/ Includes swimming pools and designated fresh water swimming areas.

The total amount of developed recreational land required to fulfill present and future needs is displayed in Table 10.

TABLE 10
DEVELOPED LAND, EXISTING AND NEEDED

<u>Geographic Region</u>	<u>Existing Land</u>		<u>Total Developed Land Needed</u>		
	<u>Acres</u>	<u>Acres</u>			
	<u>Total</u>	<u>Developed</u>	<u>1970</u>	<u>1980</u>	<u>2000</u>
Upper Coastal	48,270	19,607	28,960	40,522	77,336
Middle Coastal	6,389	3,829	5,723	8,992	15,843
Lower Coastal	<u>134,995</u>	<u>4,498</u>	<u>7,605</u>	<u>12,537</u>	<u>20,527</u>
TOTAL	189,654	27,934	42,288	62,051	113,706

The undeveloped land within these parks is sufficient to meet the land requirements till the year 2000. However, the majority of this land is located away from where these needs occur. It has been an accepted policy of park agencies to leave much of the acreage of parks in an undeveloped condition. Therefore, another means other than development of undeveloped park land will be needed to satisfy needs and fulfill demands. Methods that could be pursued are land acquisition and encouraging the private sector to assume a larger responsibility in providing recreation opportunities.

By the year 2000, an additional 14,770 surface acres of water will be needed to supply the demand for water-based recreation.

Significant needs exist for more recreational facilities in the Texas Coastal Basins. These needs can probably best be met by a combination of public and private facilities. Where a significant concentration of need exists for a certain type of facility, there appears to be an opportunity for privately owned development. An example of this might be in the Lower Geographic Region where a significant need exists for campsites, picnic tables, baseball fields, designated swimming areas, trails of all kinds, and golf. Appraisals indicate a high potential for some of these activities. A large portion of the recreational facilities needed are expected to be supplied by public projects, such as state parks.

OPPORTUNITIES FOR DEVELOPMENT

Several outdoor recreational activities provide opportunity for private enterprise. In the past 10 years there has been a great increase in the

number of privately owned camping areas and many more campsites are needed in this area. There also exists a great need for horseback riding trails, swimming pools, fishing piers, boat dock facilities, and golf courses. These are all items that offer opportunity for private enterprise.

On the other hand a great opportunity exists for public agency involvement in outdoor recreation. Some of the facilities that could be provided by public agencies are swimming beaches, bicycle trails, walking trails, picnic areas, and playgrounds.

The existing parks have the capability of supplying additional recreational facilities if they were developed to their maximum potential, with respect to natural or significant environmental areas.

A virtually untapped wealth of potential recreational resources are the privately owned farm ponds and irrigation reservoirs. With over 15,000 farm ponds and 300 reservoirs located throughout the basin, this presents the private sector with an opportunity to contribute immensely in supplying additional recreational facilities, such as fishing, camping, picnicking, and swimming.

Most of the beaches along the 300-mile coastline of the study area remain undeveloped and inaccessible. This resource has the capability of satisfying the demand for saltwater-related activities beyond the year 2000.

In acquiring and developing land for recreation, land along and adjacent to existing reservoirs, lakes, rivers, and bays should receive high consideration.

PROBLEMS

Over 3,000,000 people live in the Texas Coastal Basins according to the 1970 census. While the basins cover only 13 percent of the total land area of Texas, they contain 30 percent of the urban population of Texas. Population projections for the next 25 years show dramatic increases in the basins. Corresponding to this is expected to be an increase in demand for leisure time recreational activities. Therefore, careful planning is needed on a region-wide scale.

Presently, developed recreational facilities are not adequate to meet the demand. Some of the higher priority needs at this time are picnic tables, boat ramps, swimming pools, and trails of all kinds. In order to alleviate this current problem an intensive effort will be needed by cities, counties, state, federal, and private enterprise.

Coordinating efforts of private, city, county, state, and federal agencies is needed. Some facilities lend themselves well to being developed by certain agencies. Playgrounds are often developed by cities and hunting areas have usually been developed by private enterprise in Texas. Swimming pools and camping areas have been developed by several agencies. A coordinated effort is needed in order to develop the amount of facilities needed and in the proper proportions to meet future requirements.

Uneven distribution of facilities, resources, and needs are other problems to be reckoned with. A much greater need exists in the Upper and Lower areas than in the Middle area for campsites, walking trails, and designated swimming areas. The need for golf is far greater in the Upper than in either of the other two areas.

Water-oriented recreation is confined largely to coastal waters of the Gulf of Mexico due to the absence of reservoirs and state parks with water bodies. The continuing capability of the coastal area to provide adequate recreation is being impaired because of increasing expansion of industrial and private development along the coast. Public access to beaches from mean low tide to the vegetation line is set forth in the "open beaches" law, but the area is undefined along vast stretches of the coast. There is also a recognized shortage of access roads to bays, estuaries, and other existing public waters.

Other problems affecting recreation in the coastal area include shoreline erosion, tidal damage, and pollution. High tides, due to hurricanes, inflict heavy damage to barrier islands and beaches. Pollution is a very serious threat to outdoor recreation largely due to heavy use of the coastal waters for transportation, industrial purposes, and as a disposal area for by-products of an affluent society. Indiscriminate dumping of foreign matter into bays, estuaries, and coastal streams kills fish, damages habitat, and deters swimming and boating activities.

There are problems in securing land for recreational opportunities where it is mostly needed - near densely populated metropolitan areas. Recreation has not been able to compete successfully with other uses for land. This situation is complicated by the lack of land use guidelines which could encourage the purchase of land for open space and recreational areas.

CONCLUSIONS

1. Strong effort needs to be put forth by cities and counties to seek sources of federal or state funding for development of outdoor recreational areas.
2. Development of outdoor recreational areas needs to follow the Texas Outdoor Recreation Plan and the various regional outdoor recreation plans.
3. Landowners need to be made aware of the potential of outdoor recreation as a business enterprise. They also need to be made aware of the pitfalls.
4. Several outdoor recreational facilities need to be given high priority for development. These include swimming pools, boat docks, fishing piers, trails of all kinds, campsites, picnic tables, and golf courses.
5. Some of the undeveloped land in parks is planned for development in the future. Development of these areas should receive top priority for the expenditure of development money.

- 6. Management decisions need to direct development of park lands so that unique and significant natural resource areas are preserved.

REFERENCES

Texas Parks and Wildlife Department, Comprehensive Planning Branch, 1975
Texas Outdoor Recreation Plan.

The "Dallas Morning News", Texas Almanac and State Industrial Guide, 1974-1975, A. H. Belo Corporation.

Texas Highway Department, Travel & Information Division, Texas - Land of Contrast.

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